

**To:** Terry, Robert[Terry.Robert@epa.gov]  
**From:** Terry, Robert  
**Sent:** Wed 6/8/2016 7:39:59 PM  
**Subject:** Hunters Point: Surface contamination limits at a 10<sup>-4</sup> risk level

Here is a table that I sent you in April, showing surface contamination limits that I derived at the 10<sup>-4</sup> risk level using the PRG calculator. If you compare the values in the table below with the limits in Reg Guide 1.86, you will easily see that the Reg Guide 1.86 limits generally satisfy Superfund requirements.

**From:** Terry, Robert  
**Sent:** Tuesday, April 05, 2016 3:41 PM  
**To:** LEE, LILY <LEE.LILY@EPA.GOV>  
**Cc:** Guria, Peter <Guria.Peter@epa.gov>  
**Subject:** RE: Thank you for offering to do a table showing concentrations equivalent to 10<sup>-4</sup>

Here's a table I prepared for you at the end of February. Let me know if you need anything else.

SPRG (Surfaces) and PRG (Soil & Water) Calculator Results at the  $1 \times 10^{-4}$  Risk Level  
Calculated 26-Feb-2016

| Radionuclide  | Surfaces<br>dpm/100 cm <sup>2</sup> |            | Soil<br>pCi/g          |             | Water<br>pCi/L       |
|---------------|-------------------------------------|------------|------------------------|-------------|----------------------|
|               | Equipment<br>& Waste                | Structures | Construction<br>Worker | Residential | Equipment<br>& Waste |
| Americium-241 | 381840                              | 381840     | 5.19                   | 4.70        | 33                   |
| Cesium-137    | 21201                               | 21201      | 10.1                   | 4.66        | 119                  |
| Cobalt-60     | 13165                               | 13165      | 5.37                   | 3.19        | 259                  |
| Europium-152  | 14319                               | 14319      | 6.38                   | 3.76        | 642                  |
| Europium-154  | 17605                               | 17605      | 7.74                   | 4.52        | 396                  |
| Hydrogen-3    | --                                  | --         | 7.74                   | 4.26        | 1370                 |
| Plutonium-239 | --                                  | --         | 1360                   | 3.57        | 25                   |
| Radium-226    | 5505                                | 5505       | 2.33                   | 0.63        | 0.044                |
| Strontium-90  | 541680                              | 541680     | 998                    | 6.39        | 46                   |
| Thorium-232   | --                                  | --         | 4.72                   | 0.35        | 2.9                  |
| Uranium-235   | 62160                               | 62160      | 34                     | 4.75        | 46                   |

NOTES: \*The estimates for Surface PRGs are taken from the SPRG Calculator using default values for the 3-D direct external exposure indoor worker scenario. Requirements for building structure surfaces and for equipment & waste surfaces are taken to be the same, as per U.S. NRC Regulatory Guide 1.86 *Termination of Operating Licenses for Nuclear Reactors* dated June 1974 and reviewed December 2011.

<sup>b</sup>The estimates for Soil PRGs are taken from the PRG Calculator using default values for the outdoor worker and residential scenarios.

<sup>c</sup>The estimates for Water PRGs are taken from the PRG Calculator using default values for the residential scenario. Generally, MCLs for drinking water are preferred values for water.

<sup>d</sup>By agreement between the Navy and EPA Region 9 the remediation goal for soil is 1.0 pCi/g.

**From:** LEE, LILY

**Sent:** Tuesday, April 05, 2016 1:21 PM

**To:** Terry, Robert <[Terry.Robert@epa.gov](mailto:Terry.Robert@epa.gov)>

**Subject:** Thank you for offering to do a table showing concentrations equivalent to  $10^{-4}$

Dear Rob,

I appreciate your offer yesterday to do a table showing concentrations equivalent to  $10^{-4}$  risk. That would be helpful.

Lily

Lily Lee

Cleanup Project Manager

Superfund Division

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